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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,620	03/23/2005	Masanobu Awano	258963US2PCT	5101

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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06/17/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/506,620	Applicant(s) AWANO ET AL.	
	Examiner Harry D. Wilkins, III	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/5/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
2. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claim Interpretation

3. Due to apparent disagreement on interpretation of claim scope, the examiner will set forth his interpretation of the claimed subject matter. Claim 19 is interpreted as having a chemical reaction component, such as the three layer reaction component as set forth in claim 21, over which a surface coating layer which is “configured to inhibit an ionization reaction of adsorbed oxygen” is disposed. As per Applicants' own specification at pages 46-48, the surface coating layer may be made of an ion conductor, a mixed conductor or an insulator. Although Applicants appear to be arguing that the prior art does not teach the structure set forth in figure 8 and example 12 disclosed herein, wherein the surface coating layer was made from yttria-stabilized zirconia only, the claims as written are not limited to such structure.

4. Thus, claims 19-21, as a whole, are interpreted to require the following layers, in order, from bottom to top:

- a. Oxidation phase (described at page 46 and in example 12), composed of a substance having both electron conductivity and ion conductivity, such as platinum;
- b. Ion-conductive phase (described at page 45), composed of a substance having ionic conductivity, such as yttria (or scandia) stabilized zirconia or gadolinium oxide stabilized ceria;
- c. Reduction phase (described at pages 43-45), composed of a substance of mixed conductivity, such as platinum or palladium mixed with yttria stabilized zirconia; and,

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d. Surface coating layer (or ionization reaction inhibition layer) (described at page 46-48), composed of an ion conductor, a mixed conductor or an insulator (also set forth this way by claim 20). Such composition includes yttria stabilized zirconia (ion conductor), mixed platinum or other conductor with yttria stabilized zirconia (mixed conductor) and alumina (insulator).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 19-25 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Awano et al (US 6,818,107)

The applied reference has common inventors and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

See example 1, col. 6.

The structure taught by Awano et al included (a) an anode (oxidation phase) made of platinum, (b) an electrolyte (ion conduction phase) made of yttria stabilized zirconia, (c) a lower cathode (reduction phase) made of mixed platinum and yttria stabilized zirconia and (d) an upper cathode (surface coating layer) made of mixed nickel oxide and yttria stabilized zirconia.

Regarding claim 22, this feature relates to the manner of using the claimed structure, and, per MPEP 2114, has not been given patentable weight except to the extent that the apparatus of Awano et al was capable of operating in the claimed fashion.

7. Claims 19-25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Awano et al (JP 2003-033646)

See example 1, para. [0018].

The structure taught by Awano et al included (a) an anode (oxidation phase) made of platinum, (b) an electrolyte (ion conduction phase) made of yttria stabilized zirconia, (c) a lower cathode (reduction phase) made of mixed platinum and yttria stabilized zirconia and (d) an upper cathode (surface coating layer) made of mixed nickel oxide and yttria stabilized zirconia.

Regarding claim 22, this feature relates to the manner of using the claimed structure, and, per MPEP 2114, has not been given patentable weight except to the extent that the apparatus of Awano et al was capable of operating in the claimed fashion.

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8. Claims 19, 20, 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Awano et al "Low Current Density Electrochemical Cell for NO Decomposition" (2001).

Awano et al teach a chemical reactor for subjecting a treatment substance (NO) to a chemical reaction, wherein a surface coating layer (mixed NiO-YSZ) is formed on the chemical reaction component surface (cathode) and which inherently inhibits the ionization reaction of adsorbed oxygen on the surface of a chemical reaction component (cathode) where the chemical reaction of the treatment substance (NO) proceeds.

Regarding claim 20, the surface coating layer was a mixed conductive substance.

Regarding claim 22, the treatment substance was NO, which was reduced into oxygen ions in the reduction material (NiO) which ions were then conducted in the ion-conductive material (YSZ).

Regarding claim 23, since Awano et al teach using the same material for the surface coating layer as is disclosed by Applicant, it is expected that it would inherently be made of a material that blocks the conduction path by which current supplied from outside to the chemical reaction component (cathode) reaches the adsorption point of oxygen molecules.

Regarding claim 24, the surface coating layer was the top most layer on the chemical reactor of Awano et al.

Double Patenting

9. Claims 19-25 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,818,107. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '107 patent include a lower cathode (reduction phase) made of a mixture of electron conductive phase (majority) and ion conductive phase and an upper cathode (surface coating layer) made of a mixture of ion conductive phase (majority) and electron conductive phase, which structure has the functions as set forth in claims 19-25.

Response to Arguments

10. Applicant's arguments filed 11 May 2009 have been fully considered but they are not persuasive. Applicant has argued that none of the applied references teach the surface coating layer as claimed, and attempts to distinguish the claimed structure from the prior art by relying on the description of example 12 and figure 8.

11. In response, as set forth above, the Applicants appear to be interpreting the claimed invention more narrowly than the actual structure claimed. Thus, in view of the interpretation of the claimed invention set forth above, Applicants' arguments are not found persuasive.

Information Disclosure Statement

12. Applicant's IDS filed 5 March 2009 is noted, however, none of the references cited therein are considered publications for consideration. One of the two applications list is this application. To the extent necessary, the other application has been

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considered by the examiner, but no rejection grounds are deemed necessary at this time.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/
Primary Examiner, Art Unit 1795

hdw